

MURPA Seminar Friday 29 October 2010 from NCSA Illinois

Venue: Seminar Room 135, Building 26 Monash Clayton at 9am (coffee from 8.45am)

Subject: **Lattice QCD: Challenges of Scaling to Peta- and Exaflop Speeds for the computational approach to Quantum Chromodynamics**

Speaker: **Dr Steven Gottlieb**, Department of Computer Science and Deputy Directory for Research for the Institute of Advanced Computing Applications and Technologies at University of Illinois

Abstract:

Lattice QCD is a computational approach to Quantum Chromodynamics, the theory of Nature's strong force. After explaining the physical and computational background, I will discuss the size of future calculations, as well as some issues related to resilience and energy consumption. The basic assumption is that scientists would prefer to think about the science, but that if there is a clear value to dealing with other issues, they are certainly willing to think about them.

Bio: Dr Gottlieb works in elementary particle theory mostly studying the specialty of lattice QCD. He is part of the MILC Re3search Program which uses large scale numerical simulations to study quantum chromodynamics (QCD), the theory of the strong interactions of subatomic physics. This research addresses fundamental questions in high energy and nuclear physics, and is directly related to major experimental programs in these fields. Dr Gottlieb has also worked with Beowulf clusters and made comparisons of code performance on clusters and supercomputers.

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